

LISTING OF CLAIMS:

The following listing of claims replaces all previous versions and listings.

1. – 2. (Canceled)

3. (Currently amended) ~~The circuit according to claim 2,~~ A disconnection detecting circuit for a sensor apparatus comprising:

a control circuit;

a sensor circuit including a functional circuit having one or a plurality of transistors for outputting a sensor signal to said control circuit upon receipt of power supply from said control circuit in a state where a plurality of connection lines and terminals are interposed between said control circuit and said sensor circuit, with said disconnection detecting circuit being made to detect a disconnection of at least one of said connection lines; and

reverse current checking means for checking a reverse current in said transistor of said functional circuit at the occurrence of the disconnection of said connection line,

wherein:

in a normal operation, an energizing current is supplied directly from said control circuit through said terminal to a collector or drain of said transistor in the sensor circuit side,

in response to the occurrence of a disconnection of said connection line, an impedance in the sensor circuit side is set to be higher than an impedance in the control circuit side,

said functional circuit has one or a plurality of amplification circuits and said amplification circuit includes an output side amplification circuit for carrying out inputting and outputting of a direct-current signal from an output terminal of said sensor circuit through said connection line, and

said reverse current checking means is made to check the reverse current in said transistor of said output side amplification circuit at the occurrence of the disconnection of said connection line.

4. (Original) The circuit according to claim 3, wherein said amplification circuit is driven upon receipt of the supply of a current from a constant-current circuit, and said output side amplification circuit is equipped with an output current source arranged in the form of a current mirror circuit, said constant-current circuit is made to supply a current to said output current source and is provided separately from a constant-current circuit for supplying a current to an amplification circuit other than said output side amplification circuit.

5. (Currently amended) ~~The circuit according to claim 2,~~ A disconnection detecting circuit for a sensor apparatus comprising:

a control circuit;

a sensor circuit including a functional circuit having one or a plurality of transistors for outputting a sensor signal to said control circuit upon receipt of power supply from said control circuit in a state where a plurality of connection lines and terminals are interposed between said

control circuit and said sensor circuit, with said disconnection detecting circuit being made to detect a disconnection of at least one of said connection lines; and

reverse current checking means for checking a reverse current in said transistor of said functional circuit at the occurrence of the disconnection of said connection line,

wherein:

in a normal operation, an energizing current is supplied directly from said control circuit through said terminal to a collector or drain of said transistor in the sensor circuit side,

in response to the occurrence of a disconnection of said connection line, an impedance in the sensor circuit side is set to be higher than an impedance in the control circuit side, and

said transistor is a PNP bipolar transistor, and a collector of said PNP bipolar transistor is connected to a power supply bus side producing a lower side reference electric potential in an operation of said functional circuit, and

said reverse current checking means is interposed between said collector of said PNP bipolar transistor and said power supply bus having said lower side reference electric potential to check a reverse current in said PNP bipolar transistor.

6. (Currently amended) ~~The circuit according to claim 1,~~ A disconnection detecting circuit for a sensor apparatus, comprising a control circuit and a sensor circuit including a functional circuit having one or a plurality of transistors for outputting a sensor signal to said control circuit upon receipt of power supply from said control circuit in a state where a plurality of connection

lines and terminals are interposed between said control circuit and said sensor circuit, with said disconnection detecting circuit being made to detect a disconnection of at least one of said connection lines,

wherein:

in a normal operation, an energizing current is supplied directly from said control circuit through said terminal to a collector or drain of said transistor in the sensor circuit side,

in response to the occurrence of a disconnection of said connection line,
an impedance in the sensor circuit side is set to be higher than an impedance in the control circuit side, and

said functional circuit includes an amplification circuit having said one or plurality of transistors, and a current control circuit is provided to cut off an operational current for said amplification circuit at the occurrence of the disconnection of said connection line.

7. (Original) The circuit according to claim 6, wherein said amplification circuit includes an output side amplification circuit for carrying out inputting/outputting of a direct-current signal from a terminal of said sensor circuit through said connection line, and said current control circuit cuts off an operational current for said output side amplification circuit at the occurrence of the disconnection of said connection line.

8. (Original) The circuit according to claim 6, wherein said current control circuit is constructed with a current mirror circuit including a first transistor to which a current is inputted

from a power supply bus of said sensor circuit and a second transistor whose first and second transistor control terminals are connected to each other, and a resistance element is connected between said power supply bus of said sensor circuit and said transistor control terminals.

9. (Currently amended) The circuit according to claim ~~1~~ 3, wherein said transistor is a bipolar transistor, and a current checking means is provided to check the supply of a base current to said bipolar transistor at the occurrence of the disconnection of said connection line.

10. (Currently amended) The circuit according to claim ~~2~~ 3, wherein said reverse current checking means is constructed by reverse-connecting a diode or a diode-connected transistor.

11. (Original) The circuit according to claim 9, wherein said current checking means is constructed by reverse-connecting a diode or a diode-connected transistor.